

DIRECT TESTIMONY AND EXHIBIT OF**PHILIP HAYET****ON BEHALF OF****THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF****DOCKET NO. 2023-9-E**

1 **Q. STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.**

2 A. My name is Philip Hayet, and I am a Vice President and Principal of J. Kennedy
3 and Associates, Inc. ("Kennedy"). My business address is 570 Colonial Park Drive, Suite
4 305, Roswell, Georgia, 30075.

5 **Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL**
6 **EXPERIENCE.**

7 A. I received a Bachelor of Science degree in Electrical Engineering from Purdue
8 University, and a Master of Science degree from the Georgia Institute of Technology, with
9 a specialization in Power Systems Analysis. I have over forty (40) years of experience in
10 the electric utility industry, and have worked in the areas of resource planning, economic
11 analysis, generation operations, rate analysis, and utility policy analysis. I was employed
12 from 1979 to 1996 by Energy Management Associates ("EMA," now known as Hitachi
13 Energy), and I supported its clients' use of the PROMOD IV™ ("PROMOD") and
14 STRATEGIST software models.¹ In 1996, I founded Hayet Power Systems Consulting
15 ("HPSC") and offered consulting services to United States and international-based clients.
16 In addition to working for HPSC, in 2000, I began working for Kennedy. In 2015, HPSC
17 and Kennedy combined, and I became a Principal of the merged company. A summary of

¹ PROMOD is a detailed hourly probabilistic production cost model, and STRATEGIST is a long-term resource optimization planning model.

my education, work experience, and expert testimony appearances is included in Exhibit PH-1.

Q. ON WHOSE BEHALF DO YOU PROVIDE THIS TESTIMONY?

A. I am testifying on behalf of the South Carolina Office of Regulatory Staff (“ORS”).

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?

A. Yes, I testified in Dominion Energy South Carolina, Inc.’s (“DESC” or the “Company”) 2020 IRP proceeding (Docket No. 2019-226-E), Lockhart Power Company’s 2020 IRP proceeding (Docket No. 2019-227-E), Duke Energy Carolinas, LLC’s (“DEC”) 2020 IRP proceeding (Docket No. 2019-224-E), Duke Energy Progress, LLC’s (“DEP”) 2020 IRP proceeding (Docket No. 2019-225-E), and DESC’s August 2022 request for a mid-period adjustment in base fuel cost rates (Docket No. 2022-259-E).

I have also testified as an expert witness at the Federal Energy Regulatory Commission (“FERC”) and in other states, including Georgia, Indiana, Kentucky, Louisiana, Minnesota, Utah, Wisconsin, Wyoming, and.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. The purpose of my Direct Testimony is to describe Kennedy’s review of DESC’s 2023 Integrated Resource Plan (“2023 IRP”), including an assessment of the Company’s compliance with the statutory requirements of S.C. Code Ann. § 58-37-40 (“Section 40”), as amended by the South Carolina Energy Freedom Act (“Act 62”).

I worked closely on this project with ORS Witness Anthony Sandonato and others at ORS, along with my colleagues at Kennedy, including Leah Wellborn, who also filed

testimony in this proceeding. Our team prepared a report entitled, “Review of Dominion Energy South Carolina, Incorporated’s 2023 Integrated Resource Plan Docket No. 2023-9-E” (the “Report”), which includes our findings, conclusions, and recommendations regarding the Company’s 2023 IRP. I had the overall responsibility for managing the work Kennedy performed. A copy of the Report is attached as Exhibit AMS-1 to Witness Sandonato’s Direct Testimony.

Q. DESCRIBE THE SCOPE OF KENNEDY’S REVIEW OF DESC’S 2023 IRP.

A. Kennedy performed a comprehensive review of the Company’s planning process and 2023 IRP filing and evaluated whether DESC complied with the requirements of Section 40. As part of the review, Kennedy investigated the historical context of the IRP process in South Carolina, including the Section 40 requirements, and examined all of the Company’s IRP submissions since the Act 62 modifications to Section 40 went into effect in 2020.

Kennedy also reviewed the significant features of DESC’s 2023 IRP, including the load and energy forecasting process, Electric Vehicle (“EV”) load forecast, reserve margin policy, demand side management (“DSM”) and Energy Efficiency (“EE”) assumptions, natural gas and carbon dioxide (“CO₂”) price forecasting methodologies, existing supply side resources, development of generic new supply side resources, alternative resource plans that reflect the timing, type, size, and cost of new generation resource additions and retirements of existing resources, production cost modeling, economic analyses and ranking of expansion plan results, transmission system planning process and potential investments, and plans for distribution and integrated system planning.

1 Finally, Kennedy verified that all requirements prescribed by the Commission in
2 prior orders were addressed in the 2023 IRP. This includes requirements the Commission
3 prescribed in Order Nos. 2020-832 (2020 IRP), 2021-429 (2020 Modified IRP), 2022-713
4 (2021 IRP Update), and 2023-289 (2022 IRP Update).

5 **Q. PLEASE PROVIDE A BRIEF SUMMARY OF KENNEDY’S OVERALL**
6 **CONCLUSIONS REGARDING DESC’S 2023 IRP.**

7 A. Kennedy identified several issues associated with DESC’s 2023 IRP. However,
8 DESC complied with the requirements of Section 40, and reasonably addressed the
9 requirements contained in prior Commission Orders. Section II.A. of the Report, entitled
10 “Compliance with Section 40 Requirements,” reviews each aspect of Section 40 applicable
11 to this comprehensive 2023 IRP, and explains how DESC addressed those aspects. Section
12 II.B. of the Report, entitled, “Compliance with Prior Commission Orders,” identifies the
13 one directive that the Commission specifically required DESC to address in the 2023 IRP,
14 and indicates where in the Report that directive is discussed. Table 2 of the Report discusses
15 the directive that DESC addressed in the 2023 IRP.

16 The Commission issued other directives in orders issued in earlier IRP proceedings
17 with which the Company was expected to comply prior to this 2023 IRP. Tables are
18 included in Appendix A of the Report that discuss those directives, and the tables are
19 categorized by Commission Order number. The tables in Appendix A indicate when the
20 Company was expected to comply with the Commission’s directives. Table 1 in the body
21 of the Report explains the purpose of each of the Appendix A tables.

22 The Company complied with all Commission orders; however, it is important to
23 note that IRPs require continual updates, and over time the Company is expected to

1 improve the data assumptions and methodologies relied upon in the IRP analyses.
2 Consistent with that, ORS included in the Report recommendations the Company should
3 address in either future IRPs, or immediately within this 2023 IRP. ORS recommends the
4 items that the Company should address in this 2023 IRP be discussed in the Company's
5 rebuttal testimony.

6 **Q. WHAT WERE YOUR PRIMARY RESPONSIBILITIES WITH REGARD TO THE**
7 **REPORT?**

8 A. The Report was a collaborative effort developed by a number of consultants at
9 Kennedy, and I had the primary responsibility of the following sections:

- 10 • I. Executive Summary
- 11 • II. Compliance with Section 40 and Prior Commission Orders
- 12 • III.A. Reserve Margin
- 13 • III.D. Commodity Price Assumptions
- 14 • III.E.1 Capacity Value Modeling
- 15 • III.E.4 Federal Legislation and EPA Rule Updates
- 16 • III.F. Retirements and New Resource Decisions
- 17 • III.G. Other Considerations
- 18 • Appendix A Commission Requirements
- 19 • Appendix B Generic Resource Cost Comparison
- 20 • Appendix C Core Build Plan Comparisons

21 Witness Welborn describes her responsibilities in her Direct Testimony.

22 **Q. WHAT RECOMMENDATIONS DID ORS DISCUSS IN THE REPORT?**

A. The following table contains a complete list of recommendations that are also found in the Executive Summary Section of the Report, and identifies the Kennedy witness responsible for addressing each recommendation. The table also indicates whether the recommendation should be addressed in this IRP or a future IRP.

Table 1

Item	ORS Recommendations	2023 IRP or Future IRP	Person Responsible
A1	Reserve Margin - DESC should fully document the extreme winter weather statistical analyses, and demonstrate that the models reasonably reflect winter loads during extreme low temperatures in future IRPs. The Company should also report on the Company's findings in the Stakeholder Working Group.	Future	Hayet
B1	Load Forecast - DESC should perform more detailed analyses to assess the reasonableness of its Residential and Commercial class peak load forecasts in future IRPs, and in particular, the Company should provide support for the assumption that the average peak load per residential and commercial customer will remain essentially constant over the forecast horizon.	Future	Wellborn
B2	Load Forecast - DESC should provide details in Rebuttal Testimony on the EV rate designs and load management programs the Company considers to mitigate EV impacts on peak demand and capacity need.	2023 IRP	Wellborn
C1	DSM - DESC should file the results of corrected High and Low DSM Sensitivity Cases in Rebuttal Testimony.	2023 IRP	Wellborn
D1	Commodity Forecasts - All commodity forecasts, including CO ₂ forecasts, should continue to be discussed in the Stakeholder Working Group. ORS's recommendation regarding CO ₂ forecasts is based on the fact that a CO ₂ tax has never been imposed at the Federal level or by the State of South Carolina, and there are renewable market incentives that could justify a lower price forecast, whereas pending CO ₂ rules under the Clean Air Act ("CAA") could justify a higher price forecast.	Future	Hayet
E1	Renewables - DESC should discuss the appropriate modeling of integration costs for renewable resources in the Stakeholder Working Group.	Future	Wellborn
E2	Renewables - DESC should discuss potential impacts of the proposed Environmental Protection Agency ("EPA") CAA Section 111 Regulation of Greenhouse Gas ("GHG") Emissions from Fossil Fuel-Fired Electric Generating Units ("EGU") rule change in Rebuttal Testimony.	2023 IRP	Hayet

Item	ORS Recommendations	2023 IRP or Future IRP	Person Responsible
F1	Retirements/New Resources - DESC should provide justification explaining the reasonableness of the significant cost increases associated with generic CT resources in Rebuttal Testimony.	2023 IRP	Hayet
F2	Retirements/New Resources - DESC should explain in Rebuttal Testimony why the CC heat rate assumptions are not overly optimistic and confirm this is the technology the Company is considering for the Joint CC unit.	2023 IRP	Hayet
F3	Retirements/New Resources - DESC should perform one additional modeling sensitivity of the Reference Case assuming higher battery costs based on the market data provided in the RFP conducted in Docket No. 2021-93-E. The Company should also correct the fixed Operating and Maintenance (“FO&M”) costs modeling error identified by Sierra Club. This information should be provided when the Company files Rebuttal Testimony.	2023 IRP	Hayet
F4	Retirements/New Resources - DESC should provide additional clarification of the Transmission Impact Analysis (“TIA”) Cases, and further explain how the results will be used to make a final decision about the replacement capacity selected for the Wateree units in Rebuttal Testimony.	2023 IRP	Hayet
F5	Retirements/New Resources - DESC should provide additional support for the capital and O&M costs modeled assuming continued operation at Wateree and Williams in Rebuttal Testimony.	2023 IRP	Hayet
G1	PLEXOS Benchmarking - DESC should be required to conduct production cost model benchmark studies on an on-going basis, such as once every three years ahead of Comprehensive IRP proceedings, and the Company should discuss benchmarking results in the Stakeholder Working Group.	Future	Wellborn
G2	Risk Analysis - DESC should evaluate additional ways to incorporate robust risk analyses such as assessing portfolios across multiple planning scenarios. As part of this evaluation, the Company should consider the importance of making near-term decisions that feed into the Company’s Action Plan. The Company should discuss this topic in the Stakeholder Working Group.	Future	Hayet
G3	Transmission - DESC should update the Commission on the transmission impacts and the natural gas pipeline capacity availability associated with unit retirements and new resource decisions. The Company should file the results of the 2023 TIA Study, including all workpapers and supporting documentation when it becomes available.	Future	Hayet

Q. PLEASE SUMMARIZE THE CONCLUSIONS FOR WHICH YOU WERE RESPONSIBLE.

A. Recommendation A1 concerns the Reserve Margin Study methodology that was used to evaluate system reliability based on a Loss of Load Expectation (“LOLE”) metric. DESC retained Astrapé Consulting (“Astrapé”) to perform the resource adequacy analysis using Astrapé’s SERVVM model. SERVVM utilizes a Monte Carlo simulation methodology to evaluate several key variables that impact resource adequacy and has the objective to determine the planning reserve margins for both the summer and winter that meet the common industry practice of experiencing no more than one loss of load event in ten (10) years, or no more than 0.1 days/year. To perform the probabilistic simulation analysis, 42 years of historic weather data (1980 – 2021) was used by Astrapé to reflect potential future load conditions. Astrapé also developed a model (neural network) that related load to temperature, and the process required five years of recent data (2017 – 2021). The modeling approach using the five year load/temperature model did not capture the impact of all of the weather conditions that occurred over the past 42 years, particularly the extreme weather conditions. Astrapé addressed this issue by developing a separate extreme load/weather statistical regression model. While Astrapé attempted to address this issue, DESC should fully document the extreme winter weather statistical analyses, and demonstrate that the models reasonably reflect winter loads during extreme low temperatures in future IRPs. The Company should also report on the Company’s findings in the Stakeholder Working Group.

Recommendation D1 concerns DESC’s development of commodity forecasts (gas, coal, and CO₂ price forecasts). The forecasts DESC used for this IRP are reasonable, but

1 commodity forecasts will require continued examination in future IRPs. ORS recommends
2 all of the commodity forecasts, including CO₂ forecast, should receive continued
3 evaluation in the Stakeholder Working Group. ORS's recommendation regarding CO₂
4 forecasts is based on the fact that a CO₂ tax has never been imposed at the Federal level or
5 by the State of South Carolina, and there are renewable market incentives that could justify
6 a lower price forecast, whereas pending CO₂ rules under the Clean Air Act ("CAA") could
7 justify a higher price forecast.

8 Recommendation E2 concerns the proposed EPA CAA Section 111 Regulation of
9 GHG Emissions from Fossil Fuel-Fired EGUs Rule ("Proposed GHG Rule") that was
10 issued on May 23, 2023. Since the Proposed GHG Rule was issued only recently and has
11 not received final approval, DESC did not reflect any impacts in the 2023 IRP. If the
12 Proposed GHG Rule is finalized, the requirements could significantly impact the operation
13 of the Company's existing fleet of coal and natural gas generating units, and the selection
14 of future resources. ORS recommends that DESC discuss potential impacts of the Proposed
15 GHG Rule in Rebuttal Testimony.

16 Recommendations F1, F2, and F5 concern specific resource assumptions DESC
17 utilized in the PLEXOS modeling. Recommendation F1 requests that DESC provide
18 justification in Rebuttal Testimony for the reasonableness of the significant capital cost
19 increases the Company assumed in the 2023 IRP associated with the generic CT resources,
20 compared to what the Company assumed in the 2022 IRP Update. Recommendation F2
21 relates to the generic CC heat rate assumptions DESC used, which appear to be very
22 optimistic. ORS recommends the Company explain why the CC heat rate assumptions are
23 not overly optimistic, and confirm this is the technology the Company is considering for

1 the Joint CC unit. Recommendation F5 requests that the Company provide additional
2 support for how the capital and O&M cost input assumptions were derived associated with
3 the Wateree and Williams units for the time period beyond 2030, assuming continued
4 operation of the units. DESC assumed very high escalation rates for those costs and
5 additional justification for the assumptions should be provided.

6 Recommendation F3 relates to the battery storage capital costs DESC modeled in
7 this IRP. The Company suggested that higher battery storage capital costs may be
8 warranted than it modeled based on the market data provided in the Urquhart RFP,
9 compared to the National Renewable Energy Laboratory (“NREL”) data the Working
10 Group participants advised the Company to use. While DESC stated the battery storage
11 capital cost assumptions that were used were too low, the Company did not perform any
12 analysis with higher battery storage capital cost assumptions.² ORS recommends that an
13 additional Reference Case modeling sensitivity be performed assuming higher battery
14 storage capital costs. In addition, the Sierra Club identified an error, which the Company
15 agreed with, related to the battery storage FO&M cost assumption. The Company used the
16 wrong FO&M assumption for one of the generic battery storage resources. ORS
17 recommends this assumption be corrected in the new sensitivity case.

18 Recommendations F4 and G3 address related issues. F4 concerns the use of the TIA
19 results in deciding the replacement resource selections. DESC has now submitted three
20 TIA requests to the Company’s transmission group and each request requires between six
21 months to a year to complete.³ DESC’s 2023 IRP states that the 2023 TIA was submitted

² ORS Information Request 2-9(b).

³ The first TIA was requested on February 16, 2021, and was filed with the Commission on January 7, 2022. DESC’s third TIA was submitted on January 12, 2023, and the results are expected in July 2023.

1 to the Transmission Planning Group on January 12, 2023, and was submitted to assess
2 transmission costs and construction schedules for the Shared Resource.⁴ Little time
3 remains before the Company must make decisions regarding unit retirements, upgrades to
4 meet the Effluent Limitations Guidelines (“ELG”), and acquisition of replacement
5 resources. While it is reasonable for the Company to evaluate the transmission costs and
6 schedules, Recommendation F4 requests DESC to provide additional clarification of the TIA
7 Cases, and further explain in Rebuttal Testimony how the results will be used to make a final
8 decision about the replacement capacity selected for the Wateree units.

9 Recommendation G3 requests that DESC update the Commission on the
10 transmission impacts and the natural gas pipeline capacity availability associated with unit
11 retirements and new resource decisions. The Company should also file the results of the 2023
12 TIA Study, including all workpapers and supporting documentation when the study
13 becomes available.

14 Lastly, Recommendation G2 relates to the need to consider risk in IRPs. ORS
15 recommends that the Company evaluate additional ways to incorporate robust risk
16 analyses, such as assessing portfolios across multiple planning scenarios. The Company
17 has discussed this issue in the Stakeholder Working Group, and in a meeting held on June
18 9, 2023, the Company suggested it could evaluate build plans over a wider range of market
19 scenarios. The Company invited further stakeholder feedback on this issue, and ORS
20 recommends the Company continue to discuss this issue in the Stakeholder Working
21 Group. As part of the discussions, the Company should emphasize the importance of
22 making near-term decisions that feed into the Company’s Action Plan.

⁴ DESC 2023 IRP Report, p. 30.

Q. PLEASE PROVIDE A SUMMARY OF THE CONCLUSIONS AND THE OVERALL RECOMMENDATIONS REACHED FROM YOUR ANALYSIS.

A. ORS recommends the Company address in Rebuttal Testimony the eight issues identified previously in my testimony and the Report. The other seven recommendations, also identified in this testimony and the Report, should be addressed in the Stakeholder Working Group to improve future IRPs.

Q. WILL YOU UPDATE YOUR DIRECT TESTIMONY BASED ON INFORMATION THAT BECOMES AVAILABLE?

A. Yes. ORS fully reserves the right to revise its recommendations via supplemental testimony should new information not previously provided by the Company, or other sources, become available.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

RESUME OF PHILIP HAYET, VICE PRESIDENT

EDUCATION/CERTIFICATION

M.S., Electrical Engineering, Georgia Institute of Technology, 1980
B.S., Electrical Engineering, Purdue University, 1979
Cooperative Education Certificate, Purdue University, 1979

PROFESSIONAL AFFILIATIONS

National Society of Professional Engineers
Georgia Society of Professional Engineers
Institute of Electrical and Electronic Engineers

EXPERIENCE

Since completing his Master's program, Mr. Hayet worked for fifteen years at Energy Management Associates, now Ventyx, providing consulting services and client service support to electric utility companies for the widely used planning models, PROMOD IV and STRATEGIST. Mr. Hayet had an instrumental role in designing some of the modeling features of those tools including the competitive market modeling logic in STRATEGIST.

In 1995, Mr. Hayet formed the utility consulting firm, Hayet Power Systems Consulting ("HPSC"), and worked for customers in the United States, and internationally in Australia, Japan, Singapore, Malaysia, the United Kingdom, and Vietnam. Mr. Hayet provided consulting services to Public Utility Commissions, Regional Power Pools, State Energy Offices, Consumer Advocate Offices, Electric Utilities, Global Power Developers, and Industrial Companies. Mr. Hayet's expertise covers a number of areas including utility system planning and operations, RTO analysis, market price forecasting, Integrated Resource Planning, renewable resource evaluation, transmission planning, demand-side analysis, and economic analysis.

In 2000, Mr. Hayet also joined the consulting firm of J. Kennedy & Associates, Inc. ("Kennedy and Associates") and assisted on projects that required utility resource planning, analysis, and software modeling expertise. Mr. Hayet merged his firm and became a Vice-President and Principal of Kennedy and Associates in 2015.

Mr. Hayet has conducted numerous consulting studies in the areas of RTO Cost/Benefit Analysis, Renewable Resource Evaluation, Renewable Portfolio Standards Evaluation, Electric Market Price Forecasting, Generating Unit Cost/Benefit Analysis, Integrated Resource Planning, Demand-Side Management, Load Forecasting, Rate Case Analysis and Regulatory Support.

2000 to **J. Kennedy and Associates, Inc.**
Present: **Vice President and Principal**

J. KENNEDY AND ASSOCIATES, INC.

RESUME OF PHILIP HAYET, VICE PRESIDENT

- Initially began as Director of Consulting, became Vice President and Principal in 2015
- Managed electric related consulting projects.
- Responsible for business development.
- Clients include Staffs of Public Utility Commissions and other State Agencies, State Energy Offices, Global Power Developers, and Industrial Groups, and large energy users.

1996 to Present: **Hayet Power Systems Consulting**
 President and Principal

- Managed electric utility related consulting projects
- Clients include Staffs of Public Utility Commissions and other State Agencies, State Energy Offices, Global Power Developers, and Industrial Groups, and large energy users.

1991 to 1996: **EDS Utilities Division, Atlanta, GA (Now Ventyx)**
 Lead Consultant, PROSCREEN (Now STRATEGIST) Department

- Managed a client services software team that supported approximately 75 users of the STRATEGIST electric utility strategic planning software.
- Participated in the development of STRATEGIST's competitive market modeling features and the Network Economy Interchange Module
- Provided client management direction and support, and developed new consulting business opportunities.
- Performed system planning consulting studies including integrated resource planning, DSM analysis, marketing profitability studies, optimal reserve margin analyses, etc.
- Based on experience with PROMOD IV, converted numerous PROMOD IV databases to STRATEGIST, and performed benchmark analyses of the two models.

1988 to 1991: **Energy Management Associates (EMA), Atlanta, GA**
 Manager, Production Analysis Department

- Served as Project Manager of a database modeling effort to create an integrated utility operations and generation planning database. Database items were automatically fed into PROMOD IV.
- Supervised and directed a staff of five software developers working with a 4GL database programming language.
- Interfaced with clients to determine system software specifications, and provide ongoing client training and support

RESUME OF PHILIP HAYET, VICE PRESIDENT

1980 to **Energy Management Associates (EMA), Atlanta, GA**
1988: **Senior Consultant, PROMOD IV Department**

- Provided client service support to EMA's base of over 70 electric utility customers using the PROMOD IV probabilistic production cost simulation software.
- Provided consulting services in a number of areas including generation resource planning, regulatory support, and benchmarking.

RESUME OF PHILIP HAYET, VICE PRESIDENT

TESTIMONY AND EXPERT WITNESS APPEARANCES

Date	Case	Jurisdic	Party	Utility	Subject
09/98	97-035-01	UT	Utah Committee for Consumer Services	PacifiCorp	Utah jurisdictional Net Power Costs, PacifiCorp Rate Case Proceeding
07/01	01-035-01	UT	Utah Committee for Consumer Services	PacifiCorp	Utah Jurisdictional Net Power costs in General Rate Case
2001	ER00-2854-000	FERC	Louisiana Public Service Commission	Entergy	Proposed System Agreement Modifications
07/02	02-035-002	UT	Utah Committee for Consumer Services	PacifiCorp	Special contract for industrial consumer
2002/ 2003	U-25888	LA	Louisiana Public Service Commission	Entergy	Investigation of retail issues related to the System Agreement
2003	U-27136 Subdocket A	LA	Louisiana Public Service Commission Staff	Entergy	Aging gas steam-fired retirement study
07/03	EL01-88-000	FERC	Louisiana Public Service Commission	Entergy	Rough production cost equalization proceeding
05/04	03-035-14	UT	Utah Committee for Consumer Services	PacifiCorp	Development of a large QF avoided cost methodology
06/04	18687-U 18688-U	GA	Georgia Public Service Commission Staff	Georgia Power and Savannah Electric	2004 Integrated Resource Planning Studies
08/04	ER03-583-000	FERC	Louisiana Public Service Commission	Entergy	Affiliate power purchase agreements
11/04	03-035-19	UT	Utah Committee for Consumer Services	PacifiCorp	Industrial customer's request for a special economic development tariff
11/04	03-035-38	UT	Utah Committee for Consumer Services	PacifiCorp	Large QF proceeding.
03/05	03-035-14	UT	Utah Committee for Consumer	PacifiCorp	Concerning PacifiCorp's Schedule 38 avoided cost tariff and remaining

J. KENNEDY AND ASSOCIATES, INC.

RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
			Services		unsubscribed capacity
07/05	03-035-14	UT	Utah Committee for Consumer Services	PacifiCorp	Concerning PacifiCorp's Schedule 38 avoided cost proceeding
12/05	04-035-42	UT	Utah Committee for Consumer Services	PacifiCorp	Net power costs in General Rate Case
04/06	05-035-54	UT	Utah Committee for Consumer Services	PacifiCorp	Certification request to expand Blundell Geothermal Power Station. Related to Mid-American Energy Holding's Acquisition of PacifiCorp
05/06	22403-U	GA	Georgia Public Service Commission Staff	Georgia Power and Savannah Electric	March 2006 fuel cost recovery filing
2006	06-35-01	UT	Utah Committee for Consumer Services	PacifiCorp	2006 rate case, net power costs
08/06	U-21453	LA	Louisiana Public Service Commission Staff	Entergy Gulf States	Jurisdictional separation.
11/06	U-25116	LA	Louisiana Public Service Commission Staff	Entergy Louisiana	Fuel adjustment clause filings
01/07	23540-U	GA	Georgia Public Service Commission Staff	Georgia Power	November 2005 fuel cost recovery filing
04/07	07-035-93	UT	Utah Committee for Consumer Services	PacifiCorp	General Rate Case
06/07	24505-U	GA	Georgia Public Service Commission Staff	Georgia Power	2007 Integrated Resource Planning
10/07	U-30334	LA	Louisiana Public Service Commission Staff	Cleco Power	2008 Short-Term RFP
04/08	26794-U (FCR-20)	GA	Georgia Public Service Commission Staff	Georgia Power	Fuel cost recovery filing

RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
2008	6630-CE-299	WI	Wisconsin Industrial Energy Group, Inc.	WEPCO	Certification Proceeding for environmental upgrades at Oak Creek power plant
07/08	ER07-956	FERC	Louisiana Public Service Commission	Entergy	2006 rough production cost equalization compliance filing in the System Agreement case
09/08	6680-CE-180	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Power and Light	Certification proceeding concerning Nelson-Dewey coal-fired generating unit
11/08	08-1511-E-GI	WV	West Virginia Energy Users Group	Allegheny Power	Fuel cost recovery filing
12/08	27800-U	GA	Georgia Public Service Commission Staff	Georgia Power	Vogtle 3 and 4 nuclear unit certification proceeding
2008	08-035-35	UT	Utah Committee for Consumer Services	PacifiCorp	Chehalis Combine Cycle Power Plant based on a waiver of the RFP solicitation process certification proceeding
07/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy	2007 rough production cost equalization compliance filing in the System Agreement case
07/09	U-30975	LA	Louisiana Public Service Commission Staff	SWEPCO and Cleco	Application to acquire the Oxbow Mine to supply Dolet Hills Power Station certification proceeding
09/09	E015/PA-09-526	MN	Large Power Intervenor	Minnesota Power	Request for approval to purchase Square Butte's 500 kV DC transmission line, restructure a coal based power purchase agreement
09/09	09-035-23 Direct	UT	Utah Office of Consumer Services	PacifiCorp	2009 rate case, net power costs
10/09	09A-415E	CO	Public Utilities Commission of Colorado	Black Hills/Colorado	CPCN application to construct two LMS 100 natural gas combustion turbine units
10/09	09-035-23 Surrebuttal	UT	Utah Office of Consumer Services	PacifiCorp	2009 rate case, net power costs
12/09	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	First Semi-Annual Vogtle Construction Monitoring Report

J. KENNEDY AND ASSOCIATES, INC.

RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
12/09	ER08-1224	FERC	Louisiana Public Service Commission	Entergy	2008 production costs used to develop bandwidth payments
2009	09-2035-01	UT	Utah Office of Consumer Services	PacifiCorp	2008 IRP
01/10	28945-U	GA	Georgia Public Service Commission Staff	Georgia Power	Fuel cost recovery filing
2010	EL09-61	FERC	Louisiana Public Service Commission	Entergy	System Agreement, individual operating company sales
06/10	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Second Semi-Annual Vogtle Construction Monitoring Report
12/10	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Third Semi-Annual Vogtle Construction Monitoring Report
01/11	ER09-1350 Direct	FERC	Louisiana Public Service Commission	Entergy	2008 production costs used to develop bandwidth payments
02/11	ER09-1350 Cross-Answering	FERC	Louisiana Public Service Commission	Entergy	2008 production costs used to develop bandwidth payments
04/11	33302-U (FCR-22)	GA	Georgia Public Service Commission Staff	Georgia Power	Fuel cost recovery filing
06/11	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Fourth Semi-Annual Vogtle Construction Monitoring Report
09/11	U-31892	LA	Louisiana Public Service Commission Staff	Cleco Power	Settlement agreement, CPCN to upgrade Madison 3 coal unit to accommodate biomass fuel
11/11	26550-U	GA	Georgia Public Service Commission Staff	Georgia Power	Reacquisition of wholesale block capacity
11/11	34218-U	GA	Georgia Public Service Commission Staff	Georgia Power	Decertification of two aging coal units, acquire PPA resources, approve IRP update

J. KENNEDY AND ASSOCIATES, INC.

RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
12/11	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Fifth Semi-Annual Vogtle Construction Monitoring Report
03/12	U-32148	LA	Louisiana Public Service Commission Staff	Entergy	Change of Control Proceeding to move to Midwest ISO
2012	20000-EA-400-11	WY	Wyoming Industrial Energy Consumers	Rocky Mountain Power	Certification of environmental upgrades at Naughton 3
05/12	35277-U (FCR-23)	GA	Georgia Public Service Commission Staff	Georgia Power	Fuel cost recovery filing
05/12	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Sixth Semi-Annual Vogtle Construction Monitoring Report
07/12	2012-00063	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers	Environmental upgrades in compliance with MATS and CSAPR
09/12	U-32275	LA	Louisiana Public Service Commission Staff	Dixie Electric Member Cooperative	Ten year power supply acquisition certification proceeding
12/12	EL09-61-002 Direct	FERC	Louisiana Public Service Commission	Entergy	Harm calculation, violation of System Agreement
12/12	U-32557	LA	Louisiana Public Service Commission Staff	Entergy	Certification of 28 MW PPA for renewable energy capacity (RAIN waste heat) in accordance with LPSC's Renewable Energy Pilot
12/12	U-29764	LA	Louisiana Public Service Commission Staff	Entergy	Retail proceeding regarding termination of cross-PPAs
12/12	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Seventh Semi-Annual Vogtle Construction Monitoring Report
03/13	EL09-61-002 Cross-Answering	FERC	Louisiana Public Service Commission	Entergy	Harm calculation, violation of System Agreement
04/13	2012-00578	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Company	Mitchell Certificate of Public Convenience and Necessity

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RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
05/13	36498-U	GA	Georgia Public Service Commission Staff	Georgia Power	2013 IRP and request to decertify over 2,000 MW of coal-fired capacity
07/13	U-32785	LA	Louisiana Public Service Commission Staff	Entergy	8.5 MW PPA for renewable energy capacity (Agrilectric rice hull) in accordance with LPSC's Renewable Energy Pilot
08/13	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Eighth Semi-Annual Vogtle Construction Monitoring Report
10/13	2013-00199	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers	Base rate case
05/14	13-035-184	UT	Utah Office of Consumer Services	PacifiCorp	2014 General Rate Case, net power cost
06/14	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Ninth/Tenth Semi-Annual Vogtle Construction Monitoring Report
07/14	20000-446-EA-14	WY	Wyoming Industrial Energy Consumers	PacifiCorp	2014 General Rate Case, net power cost
08/14	2000-447-EA-14	WY	Wyoming Industrial Energy Consumers	PacifiCorp	2014 Energy Cost Adjustment Mechanism application
08/14	14-035-31	UT	Utah Office of Consumer Services	PacifiCorp	2014 Energy Balancing Adjustment application
09/14	ER13-432	FERC	Louisiana Public Service Commission	Entergy	Allocation of Union Pacific Settlement Agreement benefits
10/14	2014-00225	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power	Kentucky Power Company's Fuel Adjustment Clause
12/14	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Eleventh Semi-Annual Vogtle Construction Monitoring Report
05/15	14-035-140	UT	Utah Office of Consumer Services	PacifiCorp	Solar and wind capacity contribution avoided cost proceeding.
06/15	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twelfth Semi-Annual Vogtle Construction Monitoring Report

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RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
08/15	15-035-03	UT	Utah Office of Consumer Services	PacifiCorp	2015 Energy Balancing Adjustment application
09/15	14-035-114	UT	Utah Office of Consumer Services	PacifiCorp	Cost and Benefits of PacifiCorp's Net Metering Program
11/15	39638-U	GA	Georgia Public Service Commission Staff	Georgia Power	FCR-24 Fuel Cost Recovery Proceeding
11/15	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Thirteenth Semi-Annual Vogtle Construction Monitoring Report
5/16	40161	GA	Georgia Public Service Commission Staff	Georgia Power	Georgia Power Company's 2016 IRP and Application for Decertification of Plant Mitchell Units 3, 4A, and 4B, Kraft Unit 1 CT, and Intercession City CT
6/16	29849	GA	Georgia Public Service Commission Staff	Georgia Power	Fourteenth Semi-Annual Vogtle Construction Monitoring Report
8/16	16-035-27	UT	Utah Office of Consumer Services	PacifiCorp	Renewable Energy Services Contract between Rocky Mountain Power and Facebook, Inc
8/16	16-035-01	UT	Utah Office of Consumer Services	PacifiCorp	2016 Energy Balancing Adjustment application
9/16	09-035-15	UT	Utah Office of Consumer Services	PacifiCorp	EBA Pilot Evaluation Direct Testimony
11/16	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Fifteenth Semi-Annual Vogtle Construction Monitoring Report
11/16	09-035-15	UT	Utah Office of Consumer Services	PacifiCorp	EBA Pilot Evaluation Rebuttal Testimony
11/16	EL09-61-04	FERC	Louisiana Public Service Commission	Entergy	Violation of System Agreement, Phase III, Harm Calculation, Direct
3/17	EL09-61-04	FERC	Louisiana Public Service Commission	Entergy	Violation of System Agreement, Phase III, Harm Calculation, Rebuttal
6/17	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Sixteenth Semi-Annual Vogtle Construction Monitoring Report
9/17	17-035-39	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision to Repower Wind Facilities, Direct

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RESUME OF PHILIP HAYET, VICE PRESIDENT

Date	Case	Jurisdic	Party	Utility	Subject
11/17	17-035-39	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision to Repower Wind Facilities, Surrebuttal
4/18	17-035-39	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision to Repower Wind Facilities, Response
4/18	17-035-39	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision to Repower Wind Facilities, Rebuttal to Response
12/17	17-035-40	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision for New Wind and New Transmission, Direct
1/18	17-035-40	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision for New Wind and New Transmission, Rebuttal
4/18	17-035-40	UT	Utah Office of Consumer Services	PacifiCorp	Approval of Resource Decision for New Wind and New Transmission, Second Rebuttal
6/18	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Eighteenth Semi-Annual Vogtle Construction Monitoring Report
8/18	Cause 45052	IN	Indiana Coal Council	Vectren Energy Delivery of Indiana	Request for Approval of an 850 MW CCGT Plant
9/18	U-34836	LA	Louisiana Public Service Commission Staff	Entergy Louisiana, LLC	Authorization to Participate in a 50 MW Solar PPA
11/18	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Nineteenth Semi-Annual Vogtle Construction Monitoring Report
1/19	U-35019	LA	Louisiana Public Service Commission Staff	Entergy Louisiana	Authorization to Make Available Experimental Renewable Option and Rate Schedule RTO
4/19	42310-U	GA	Georgia Public Service Commission Staff	Georgia Power	Georgia Power's 2019 IRP Proceeding
11/19	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty/Twenty-First Semi-Annual Vogtle Construction Monitoring Report
5/20	43011-U	GA	Georgia Public Service Commission Staff	Georgia Power	Georgia Power Fuel Cost Recovery Application (FCR-25)

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Date	Case	Jurisdict	Party	Utility	Subject
6/20	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Second Semi-Annual Vogtle Construction Monitoring Report
7/20	17-035-61	UT	Utah Office of Consumer Services	Rocky Mountain Power	Approval of an Export Credit Rate for Customer Generators (Primarily Rooftop Solar)
9/20	20-035-04	UT	Utah Office of Consumer Services	Rocky Mountain Power	Utah Rate Case
10/20	2019-226-E	SC	South Carolina Office of Regulatory Services	Dominion Energy South Carolina	Review of DESC's 2020 IRP
10/20	2019-227-E	SC	South Carolina Office of Regulatory Services	Lockhart Power Company	Review of Lockhart Power Company's 2020 IRP
11/20	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Third Semi-Annual Vogtle Construction Monitoring Report
12/20	20-035-01	UT	Utah Office of Consumer Services	Rocky Mountain Power	Application for Approval of the 2020 Energy Balancing Account
2/21	2019-224 and 225-E	SC	South Carolina Office of Regulatory Services	Duke Energy Carolinas and Duke Energy Progress	Review of Duke Energy's 2020 IRP
6/21	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Fourth Semi-Annual Vogtle Construction Monitoring Report
9/21	U-35927	LA	Louisiana Public Service Commission	1803 Electric Cooperative	Compliance with MBM Order in Conducting RFP and Acquiring Resources
12/21	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Fifth Semi-Annual Vogtle Construction Monitoring Report
5/22	44160-U	GA	Georgia Public Service Commission Staff	Georgia Power	Georgia Power's 2022 IRP Proceeding

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Date	Case	Jurisdicit	Party	Utility	Subject
6/22	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Sixth Semi-Annual Vogtle Construction Monitoring Report
12/22	22-035-01	UT	Utah Office of Consumer Services	Rocky Mountain Power	Application for Approval of the 2022 Energy Balancing Account
12/22	2022-259-E	SC	South Carolina Office of Regulatory Services	Dominion Energy South Carolina, Inc.	Mid-Period Adjustment to Increase Base Rates for the Recovery of Electric Fuel Costs
1/23	29849-U	GA	Georgia Public Service Commission Staff	Georgia Power	Twenty-Seventh Semi-Annual Vogtle Construction Monitoring Report

ADDITIONAL JUDICIAL PROCEEDINGS AND OTHER PROJECT INFORMATION

- 1995 – 2000 - Modeled the Singapore Power Electricity System and analyzed the benefits of dispatching a new oil-fired unit within the system, BHP Power
- 1995 – 2000 - Modeled the Australian National Energy Market to develop market based energy price forecasts on behalf of an Independent Power Producer in Australia, BHP Power
- 1995 – 2000 - Analyzed the benefit of purchasing existing gas-fired steam turbine units within the Australian market, BHP Power
- 1995 – 2000 Developed market price forecasts for South Australia as part of the evaluation of a new gas fired combined cycle unit, BHP Power
- 1995 – 2000 - Modeled the Vietnam Electricity System as part of a project to develop Least Cost Expansion plans for Vietnam, EVN State Utility
- 1995 – 2000 - Assisted in the evaluation of Phu My CCGT power plant in Vietnam, BHP Power
- 1995 – 2000 - Assisted in the development of Market Price Forecasts in several regions of the US. These forecasts were used as the basis for stranded cost estimates, which were filed in testimony in a number of jurisdictions across the country.
- 1995 – 2000 - Conducted research regarding ISO Tariffs and Operations for the PJM Power Pool, the California ISO, and the Midwest ISO on behalf of a Japanese Research.
- 1995 – 2000 - Performed research on numerous electric utility issues for 3 Japanese research organizations. This was primarily related to deregulation issues in the US in anticipation of deregulation being introduced in Japan.

J. KENNEDY AND ASSOCIATES, INC.

RESUME OF PHILIP HAYET, VICE PRESIDENT

- 1995 – 2000 - Critiqued the IRP filings of 5 utilities in South Carolina on behalf of the South Carolina State Energy Office
- 1999 - Helped to analyze the rate structure and develop an electricity price forecast for the Metropolitan Atlanta Rapid Transit Authority (MARTA) in Atlanta, Georgia
- August 2002 – Expert Report, Civil Action No. 1:00-cv-1262 in the United States District Court for the Middle District of North Carolina, United States v. Duke Energy Corporation, Department of Justice
- 2002 - Worked on behalf of the Utah Committee of Consumer Services to provide guidance and assist in the analysis of PacifiCorp's 2002 Integrated Resource Plan.
- July 2003 - Worked on behalf of the Oregon Public Utility Commission to Audit PacifiCorp's Net Power Costs per a Settlement Agreement accepted by the Public Utility Commission of Oregon in its Order No. 01-787. Audit report in Docket No. UE-116 filed July 2003.
- 2003 - Regulatory support to the Utah Committee of Consumer Services regarding PacifiCorp's 2003 Utah General Rate Case Docket # 03-2035-02.
- 2004 – Assistance to the Utah Committee of Consumer Services to analyze a series of power purchase agreements and special contracts between PacifiCorp and several of its industrial customers.
- 2005 - Worked on behalf of the Utah Committee of Consumer Services to help analyze PacifiCorp's restructuring proposals.
- 2005 - Assisted the Utah Committee of Consumer Services by evaluating PacifiCorp's 2005 IRP and assisted in writing comments that were filed with the Commission.
- 2007 - Assisted the Utah Committee of Consumer Services to evaluate PacifiCorp's 2007 IRP.
- 2007 - Conducted an investigation of the Southern Company interchange accounting and fuel accounting practices on behalf of the Georgia Public Service Commission Staff (Docket 21162-U).
- 2008 - Assisted the Louisiana Public Service Commission Staff with the review and evaluation of Cleco Power's 2008 Short Term RFP and its 2010 Long-Term RFP.
- 2008 - Assisted the Utah Committee of Consumer Services by participating in a collaborative process to develop an avoided cost tariff for large QFs.
- 2008 - Assisted the Louisiana Public Service Commission Staff with a rulemaking for the opportunity to implement a Renewable Portfolio Standard in Louisiana. (Docket No. R-28271 Sub-Docket B)
- April 2011 – Initial Expert Report, Civil Action No. 2:10-cv-13101-BAF-RSW, on behalf of the Department of Justice in US District Court, United States v. Detroit Edison

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- June 2011 – Rebuttal Expert Report, Civil Action No. 2:10-cv-13101-BAF-RSW, on behalf of the Department of Justice in US District Court, United States Detroit Edison
- 2011 - Assisted the Georgia Public Service Commission Staff to investigate the acquisition of additional coal and combustion turbine capacity currently wholesale capacity (Docket 26550).
- 2012 - Assisted the Louisiana Public Service Commission Staff with a rulemaking to design Integrated Resource Planning (“IRP”) rules. (Docket No. R-30021)
- December 2013 – Expert Report, Civil action no. 4:11-cv-00077-RWS, on behalf of the Department of Justice in US District Court, United States v. Ameren Missouri.

PUBLICATIONS AND PRESENTATIONS

Co-authored “Review of EPA’s Section 111(d) CO₂ Emission Rate Goals for the State of Montana, on behalf of the Montana Large Customer Group, October 2014.

Authored “Singapore’s Developing Power Market”, which appeared in the July/August 1999 edition of Power Value Magazine

Co-authored “The New Energy Services Industry – Part 1”, which appeared in the January/February 1999 edition of Power Value Magazine.

Co-authored and Presented “Evaluation of a Large Number of Demand-Side Measures in the IRP Process: Florida Power Corporation’s Experience”, Presented at the 3rd International Energy and DSM Conference, Vancouver British Columbia, November 1994

Co-authored “Impact of DSM Program on Delmarva’s Integrated Resource Plan”, Published in the 4th International Energy and DSM Conference Proceedings, held in Berlin, Germany, 1995

Presentation – Law Seminars International, Electric Utility Rate Cases, Case Study of the Louisiana Public Service Commission’s Quick Start Energy Efficiency Program, March 2015.